

Product Performance Data Evaluation Review

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Reviewer: Ann Sibold

PM: Richard Gebken, PM 10

EPA File Symbol: 71910-U

Product Name: ThermaCELL Mosquito Repellent Candle Lantern

Action: R300

Dec: 392374

DP: 352697

Active ingredients: d-cis/trans allethrin 21.97%

Formulation: RTU

Use Pattern: mosquito repellent candle/lantern

Application rate: Release rate enables each mat to last up to four hours.

OPPTS Guidelines: 810.33/3500

GLP studies were not submitted.

Method of support: selective method. Two similar product labels also referenced

Request: review one study, the label and cited data/labels.

Cited data:

MRID 47142402

MRID 47142403

MRID 47142404

Submitted Study:

MRID 47406402

Cited Labels:

71910-2 ThermaCELL Mosquito Repellent
4822-469 OFF! PowerPad Lamp

Cited studies' citations:

MRID47142402 Ellis, R. 2000. ThermaCELL Area Field Test Report

MRID47142403 Alten, B. et al. 2003. Field Evaluation of an Area Repellent System (ThermaCELL) Against *Phlebotomus papatasi* (Diptera: Psychodidae) and *Ochlerotatus caspius* (Diptera: Culicidae) in Sanhfura Province Turkey. Published Literature from the Journal of Medical Entomology 40 (6): 930-934.

MRID 47142404 Perkins, P. 2000. Field Testing of an Area Repellent against Black Flies.

Review of submitted study:

MRID 47406402 Shairpiro, S. and W. Wang. 2007. ThermaCELL Mosquito Repellent Candle Lantern EPA File Symbol 71910-U Representative Device Temperature Data

Purpose:

To show that the temperature data profile of the subject product (a candle based lantern) resulted in the equivalent liberation of d-cis/trans allethrin from heated mosquito mats when compared to the butane powered ThermaCELL device and the S.C. Johnson Off! PowerPad Lamp.

Methods and Materials:

The three products were compared. MR-1 was the ThermaCELL butane product. MC-1 was the ThermaCELL candle product. OFF! Lamp was the SC Johnson product. Ten units of each were used in the study. Temperature readings (°C) of each product were recorded over a four hour period and compared.

Results:

The results were displayed graphically and in tables within the submitted study in raw data and mean data form. The results showed that the mean temperature profile of the two ThermaCELL products (candle and butane heated) were nearly the same over the four hour period. The graphs also showed that the butane heated product maintained an even temperature profile with a small degree of variation while the ThermaCELL candle product showed a slightly greater variation in temperature, especially from 1-2 hours after the candle began to burn. The SCJ product showed a wider variation of temperature and the temperature dropped off in the last hour as the candle was burning down. However, the SCJ product did burn hotter at the beginning of the recording period and had a temperature that was nearly the same as the ThermaCELL butane heated product. The heat exchange device on these products was different.

Of equal importance is the ability of the device to maintain the vaporization temperature of allethrins, which is 150°C, in order to liberate the allethrin from the heated mat.

The data showed:

- 1) The MR-1 butane device showed that the product maintained a temperature greater than 150°C throughout the study. All replicates exceeded this temperature and the degree of variation was small.
- 2) The data for the MC-1 candle were more variable when compared to the MR-1 device. About 2/3 of the replicates maintained a temperature exceeding 150°C throughout the four hour study. However, the mean temperature of the MC-1 candle device exceeded 150°C throughout the study.
- 3) OFF! Lamp units showed greater variation when compared to the MC-1 and MR-1 units discussed above but most of the replicates exceeded the vaporization temperature through the first two hours of the study.

Conclusion:

The study supports the bridging of data from the MR-1 product to the MC-1 candle. The subject product temperature profile was the same or better than the OFF! Lamp in this Schawbel sponsored study.

Entomologist's Recommendations:

1. The cited and submitted data together with the cited labels support the registration of the subject product.